

Notice of Allowability

Application No.

09/854,759

Examiner

John T. Haran

Applicant(s)

BALL ET AL.

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 2/25/05.
2. ☒ The allowed claim(s) is/are 1,2,4,6-13,15,17-23,25,27-33,35,37-45,47,49-51,53,55,56 and 76-84.
3. ☒ The drawings filed on 14 May 2001 and 21 February 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date attached.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interview with James Duzan on 4/4/05.

3. The application has been amended as follows:

In The Claims:

In claim 4, delete "3" and insert therein - - 1 - -.

4. Claims 1, 2, 4, 6-13, 15, 17-23, 25, 27-33, 35, 37-45, 47, 49-51, 53, 55, 56 and 76-84 are allowed.

5. The following is an examiner's statement of reasons for allowance:

Regarding claims 1, 12, 23, 33, 45 and 51, the prior art of record fails to suggest the claimed methods, particularly the step of applying adhesive solely to a portion of the bumps or the front surface of a wafer.

Regarding claim 76, the prior art of record fails to suggest the claimed method of attaching a wafer having bumps on a surface thereof, particularly the step of attaching a tape having an adhesive and a backing on at least a portion of said surface having bumps thereon of said wafer, said tape contacting about 10% to about 60% of the surface area of said bumps.

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As noted in Applicant's arguments filed on 7/16/04, Miyamoto et al teaches that the adhesive contacts the entire surface area of the bumps and the passivation film on the surface of the wafer, which prevents warpage of the wafer during thinning from the release of the internal stresses in passivation film. While Satoh does clearly teach having an adhesive tape wherein the adhesive only contacts 10% to 60% of the surface area of the bumps (See Figure 1C), there is no motivation to modify Miyamoto to have the adhesive only contact 10% to 60% of the surface area of the bumps because then the adhesive would not contact the passivation film and the wafer would warp.

It is also noted that while Satoh does clearly teach having an adhesive tape wherein the adhesive only contacts 10% to 60% of the surface area of the bumps (See Figure 1C), the thinning process of Satoh results in the formation of separate dies without the need to cut the wafer after the thinning step because grooves were formed in the wafer prior to thinning and the thinning step removed enough material to reach the grooves leaving separate dies. There is no motivation to modify the method of Satoh to thin the wafer and then cut the wafer into individual dies.

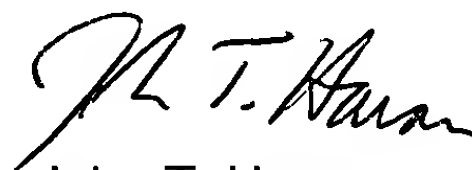
6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John T. Haran whose telephone number is (571) 272-1217. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John T. Haran
Examiner
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